REMARKS

Claims 1, 3-11, 13, 15, 16, 19, 20, 21, 23 and 26-31 were rejected in the Final Action of May 16, 2007, under 35 U.S.C. 103(b) as being unpatentable over Nishimura (JP 2001-131827) in view of Tan (WO 02/12395; U.S. Patent No. 6,710,135 used as English equivalent) and in further view of Kondo (U.S. Patent No. 5,593,778); and under 35 U.S.C. 103(a) as being unpatentable over Obuchi (U.S. Patent No. 6,417,294) in view of Tan and further in view of Kondo. under 35 U.S.C. § 103(a).

Applicants again respectfully submit that the Office has not shown how these references support a case of prima facie obviousness under 35 U.S.C. § 103(a) of the polylactic acid fiber recited in the rejected claims.

Nishimura is cited on by the Office as disclosing polylactic acid based flat yarns comprising polylactic acid, with a molecular weight of 90,000-110,000, and a lubricant in the amount of 0.5-5 wt%. The Office states that the lubricant may be ethylene bis-oleic amide or an alkyl-substituted fatty acid monoamide. Nishimura does not disclose the use of melt spun fibers.

Tan is cited by the Office as disclosing polylactic acid resin compositions having a molecular weight from 2000-500,000, used for nonwoven fabrics and yarn, which may contain a "lubricant". The

Office characterizes Tan as disclosing melt spinning to be the functional equivalent of tape yarn production.

Kondo is cited by the Office as disclosing biodegradable copolyester compositions which are melt spun into fibers having a typical fineness of 5-55 dtex.

The position of the Office is that it would have been obvious to a person of ordinary skill in the art to modify Nishimura to produce fibers from the compositions disclosed therein by melt spinning because Tan teaches melt spinning to be functionally equivalent to tape yarn production and to modify the fiber resulting from the combination of Nishimura and Tan to have a fineness of 5-55 dtex because Kondo teaches that thinner fibers increase the softness of the resulting article.

The Office has not explained, however, why a person of ordinary skill in the art would reasonably expect the proposed modification of Nishimura to be successful when (1) the disclosure of Nishimura is limited to the production of a <u>flat</u> yarn by slitting a uniaxial-stretch film of the composition disclosed therein; (2) Nishimura discloses that the use of the composition disclosed therein to provide a flat yarn having a fineness of less than 500 dtex does not provide good results; (3) the alleged equivalency disclosed by Tan is, at best, limited to the specific

compositions disclosed therein which can contain an undisclosed lubricant; and (4) the teachings of Kondo are limited to the preparation of fibers from a composition that is different from the compositions of both Nishimura and Tan.

In view of the facts that the disclosure of Nishimura is limited to flat yarns and Nishimura describes that the use of the composition disclosed therein to provide a flat yarn having a fineness of less than 500 dtex does not provide good results, there is no basis for a person of ordinary skill in the art to reasonably expect that fibers having a fineness of 0.1-50 dtex could be successfully produced from the compositions. Tan does not teach melt spinning and tape yarn production to be functionally equivalent for all known polylactic acid compositions. At best, Tan teaches these productions methods to be functionally equivalent for certain compositions disclosed therein. Any teaching that the Office considers to be supported by Tan regarding melt spinning and tape yarn production being functionally equivalent for polylactic acid compositions, generally, which contain lubricants, generally, is rebutted by the specific teaching of Nishimura that the compositions disclosed therein containing specified lubricants are not useful for obtaining yarns having a fineness of less than 500 dtex. The Office has not explained why, when Nishimura describes

that the compositions disclosed therein are not useful for obtaining yarns having a fineness of less than 500 dtex, and Tan discloses nothing concerning the compositions disclosed in Nishimura, Tan would have suggested that fibers having a fineness of significantly less than 500 dtex, i.e., 0.1-50 dtex, can be produced from the compositions of Nishimura by melt spinning. Kondo does not overcome the deficiencies of Nishimura and Tan because Kondo is discloses nothing concerning melt spinning of a composition comprising the lubricants of Nishimura.

In the absence of proper reasoning or evidence explaining or showing that the composition of Nishimura, which is disclosed as not being useful for the preparation of any fibers having a fineness of less than 500 dtex, would have been reasonably expected by the skilled artisan to be useful for preparing fibers having a fineness of 0.1-50 dtex by melt spinning, the Office has not properly supported its position and must remove the 35 U.S.C. § 103(a) rejection based on the combination of Nishimura, Tan and Kondo.

Similar considerations apply to the rejection based on the combination of Obuchi, Tan and Kondo. Obuchi discloses films formed from polyester compositions containing nucleating agents by extrusion molding. The polyester is a polylactic acid having a

molecular weight of 90,000-500,000. The nucleating agent is 0.1-10 wt% of the composition and can be ethylenebislauramide and hexamethylenebisoleamide. When Obuchi is considered in light of the disclosure of Nishimura (as it must be since obviousness under 35 U.S.C. § 103(a) requires consideration of the prior art as a whole), the Office has not shown why a person of ordinary skill in the art would have reasonably expected fibers having a fineness of 0.1-50 dtex to be successfully obtained from the compositions of Obuchi by melt spinning.

For the above reasons alone, the 35 U.S.C. § 103(a) rejections of claims 1, 3-11, 13, 15, 16, 19, 20, 21, 23 and 26-31 are improper and should be removed.

Moreover, as has been noted previously, the combinations of references cited by the Office fail to disclose or suggest the properties resulting from the use of the specific fatty acid amides according to the present invention (as recited in the rejected claims) in the melt-spinning of polylactic acid. Specifically, none of the references cited by the Office, alone or in any combination, suggests that the specific fatty acid bisamide and/or alkyl-substituted fatty acid monoamide defined in claim 1 of the present application, as opposed to other fatty acid amides such as, for example, (unsubstituted) fatty acid monoamide, can improve the

wear resistance and the ability to smoothly pass through processing steps of polylactic acid fiber, bring the b* value of the fiber down to -1 to 5, and attain a high quality presenting no yellow tincture.

In the Advisory Action of September 28, 2007, the Office states that the properties of the polylactic acid fibers of the present invention are not claimed and would otherwise be inherent "since the compositional elements are met."

The unexpected properties of applicants' fibers need not be recited in the claims because the properties are inherent in the fibers as claimed. However, the claims do, in fact, recite unexpected properties of the fibers.

Regarding the position of the Office that the properties of the claimed polylactic acid fibers would be inherent in fibers which meet the limitations of the claims, such properties would, of course, be inherent in such fibers because the fibers would be those of the present invention. However, applicants claimed fibers are not disclosed in the prior art, i.e., no patent or publication discloses applicants' fibers, and applicants are not required to compare their invention with subject matter that is not in the prior art. As noted in MPEP § 716.02(e)(III):

> Although evidence of unexpected results must compare the claimed invention with the closest prior art, applicant

> is not required to compare the claimed invention with subject matter that does not exist in the prior art. *In re Geiger*, 815 F.2d 686, 689, 2 USPQ2d 1276, 1279 (Fed. Cir. 1987) (Newman, J., concurring) (Evidence rebutted prima facie case by comparing claimed invention with the most relevant prior art. Note that the majority held the Office failed to establish a prima facie case of obviousness.); *In re Chapman*, 357 F.2d 418, 148 USPQ 711 (CCPA 1966) (Requiring applicant to compare claimed invention with polymer **suggested** by the combination of references relied upon in the rejection of the claimed invention under 35 U.S.C. 103 "would be requiring comparison of the results of the invention with the results of the invention." 357 F.2d at 422, 148 USPQ at 714.).

(Emphasis applicants').

In the absence of proper reasoning or evidence showing that the properties of the fibers of the invention are expected, the Office's rejections are rebutted by the data in the present application and cannot be maintained.

Notwithstanding the impropriety of the 35 U.S.C. § 103(a) rejections, the claims have been further amended in order to advance the prosecution of the application. Specifically, claim 1 has been amended to include the limitations of claims 3 and 4 and claims 3 and 4 have been canceled. Claim 1 has also been amended to recite that the melting point of [each of] the fatty acid bisamide and the alkyl-substituted fatty acid monoamide is 100°C or higher (based on the description in paragraph [0074] of the specification of the present application) and to recite a single

fiber fineness in the range of 0.1-10 dtex (based on the description in paragraph [0122]).

The fatty acid bisamide and/or alkyl-substituted fatty acid monoamide recited in claim 1 of the present application having a melting point not lower than 100 °C can exhibit a remarkable heat resistance. Once they are processed into a textile product, they have remarkable intermediate set property and dyeing property, and when exposed to a hot environment, they can be prevented from undergoing sublimation and uneven dyeing is suppressed (see paragraphs [0068] and [0074]).

The above can be clearly seen from considering the following: Dyeing unevenness is found in the examples, i.e., "○: A slight dyeing unevenness was recognized" in the case of SS (N-stearyl stearic acid amide) having a melting point of 95 °C (Examples 8, 19, and 24 in the present application). However, it is "◎: No dyeing unevenness was recognized" where the "specific fatty acid amide" has a melting point not lower than 100 °C as in each of the cases of EBA (ethylenebisstearic acid amide) having a melting point of 144 °C (Examples 1, 18 and 25) and of KBA (m-xylylenebisstearic acid amide) having a melting point of 123 °C (Examples 7 and 23).

Also, amended claim 1 recites that the carboxyl end group concentration of the polylactic acid is 40 eq/t or less. This

results in suppression of the hydrolysis of the fiber (paragraph [0060]) and further improves the fiber durability as a result of this in synergism with the specific fatty acid amino having a melting point not lower than 100 °C.

As previously noted in the response filed April 3, 2007, in the carrying out of melt spinning, the polylactic acid is maintained in a molten state at a high temperature for a long time during the time between melting and spinning through spinnerets, and thermal deterioration thereof proceeds. If the polymer undergoes thermal deterioration, it becomes difficult to process such polymer to such a very fine yarn as having a single fiber fineness of 0.1-10 dtex without yarn breaking. Thus, by preferably limiting the carboxyl end concentration of the polylactic acid to 40 eq/t or less and, additionally, using a specific fatty acid amide "having a melting point of 100 °C or above", the above difficulty is overcome and it is possible to obtain a high quality fiber remarkable in respect of each of the wear resistance, process passability and color tone.

In the Final Action of May 16, 2007, the Office takes the position that the melting point temperature and carboxyl end group amount recited in claims 3 and 4 (and now recited in amended claim 1) are inherent properties of a polylactic acid fiber which

contains fatty acid bisamide and/or alkyl-substituted fatty acid monoamide (page 6, lines 1 to 2, of the Action). Applicants respectfully submit that such properties are not inherent. As indicated by paragraph [0074] of the specification of the present application, the melting point temperature varies according to the specific fatty acid bisamide and/or alkyl-substituted fatty acid monoamide. Furthermore, paragraph [0060] of the specification indicates that the carboxyl end group amount of polylactic acid fibers can be controlled.

According to Nishimura, a polylactic acid is processed into a uni-axial stretched film, which is sliced to a "flat yarn" of a 500-600 dtex. In other words, it is not a fine fiber but a sheet-form file which is extruded, so that the extrusion can easily take place regardless of the carboxyl end group concentration of polylactic acid and the melting point of the "specified fatty acid amide". Nishimura does not teach or suggest limiting the carboxyl end group concentration of the polylactic acid to 40 eq/t or less and limiting the specific fatty acid amide to one having a melting point of 100 °C or above.

Obuchi discloses films and sheets as aliphatic polyester formed items, but contains no disclosure concerning a melt-spun fiber having a single-fiber fineness of 0.1-50 dtex. Also, Obuchi

discloses adding various aliphatic carboxylic acid amides as a transparent nucleating agent (col. 10, lines 22-49). Similar to Nishimura, however, Obuchi does not teach or suggest limiting the carboxyl end group concentration of the polylactic acid to 40 eq/t or less and limiting the specific fatty acid amide to one having a melting point of 100 °C or above.

Tan discloses a melt spun yarn of polylactic acid resin composition. Tan, however, does not disclose nor suggest any of a single fiber fineness of 0.1-10 dtex, a carboxyl end concentration of polylactic acid of 40 eq/t or less and use of the specific fatty acid amide having a melting point of 100 °C or above.

Kondo describes preparing melt spun yarns of biodegradable copolymer compositions having a fineness of 5-50 denier (5.5-55 dtex). Kondo neither shows nor suggests a carboxyl end concentration of polylactic acid of 40 eq/t or less and use of the specific fatty acid amide having a melting point of not lower than 100 °C.

Thus, the modifications of Nishimura and Obuchi, in view of Tan and Kondo, proposed by the Office will not result in the fiber of claim 1 of the present application.

Claims 13, 15, 24 and 25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura, Tan and Kondo or Obuchi, Tan

and Kondo, in further view of Anderson (U.S. Patent No. 4,009,513). Claims 12, 14, 17, 18 and 22 were rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura, Tan and Kondo or Obuchi, Tan and Kando in view of Yamakita (U.S. Patent Publication No. 2003/0079297).

These rejections depend on the rejection of claim 1. Since claim 1 has been shown to be allowable, claims 12 to 15, 17, 18, 22, 24 and 25 are also allowable.

Removal of the 35 U.S.C. 103(a) rejections and an allowance of the claims are believed to be in order and are respectfully requested.

In the event that this paper is not considered to be timely filed, applicants hereby petition for an appropriate extension of time. The fee for any such extension and any additional required fees may be charged to Deposit Account No. 111833.

Respectfully submitted,
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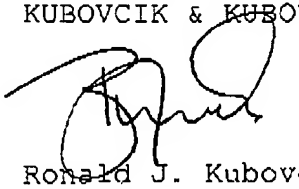

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